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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,100	07/14/2000	Koichi Sato	P19364	5280

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EXAMINER

WISDAHL, ERIC D

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,100

Applicant(s)

SATO, KOICHI

Examiner

Eric D Wisdahl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyadera (U.S. Patent 5, 550, 587).

Regarding Claim 1, Miyadera discloses a device for calculating a white balance control amount for an electronic still camera, comprising:

- an image signal generating processor that generates an image signal corresponding to a first image formed on a light receiving surface of an imaging device (Column 3 lines 58 – 59);
- an image area extracting processor that extracts at least one image area, which contains a second image of a subject positioned at a predetermined distance from said electronic still camera, from said first image (Column 6 line 24 – Column 7 line 64, wherein a subject will have the same distance throughout the sectors it occupies and will obtain the same coefficients throughout it's white balance adjustment); and
- a control amount calculating processor that calculates a control amount for performing a white balance adjustment, based on said image signal relating to

said at least one image area (Column 6 line 24 – Column 7 line 64, Column 12 lines 39 – 47, see above).

Regarding Claim 4, Miyadera discloses:

- image area extracting processor extracts a plurality of image areas from said first image (Column 6 lines 52 – 60, Column 12 lines 39 – 47), and
- control amount calculating processor calculates said control amount for each of said plurality of image areas (Column 6 lines 38 – 47, Column 7 lines 55 – 64, Column 12 lines 39 – 47).

Regarding Claim 5, Miyadera discloses:

- image area extracting processor divides said first image to obtain said plurality of image areas, based on distances of subjects included in said first image (Column 6 line 24 – Column 7 line 64, Column 12 lines 39 – 47, wherein a subject will have the same distance throughout the sectors it occupies and will obtain the same coefficients throughout it's white balance adjustment).

Regarding Claim 11, Miyadera discloses a device for calculating a white balance control amount for an electronic still camera which photographs an image containing at least one subject and at least one portion other than said at least one subject, said white balance control amount calculating device comprising:

- an imaging device by which an image signal corresponding to said image is generated (Column 3 lines 58 – 59);
- an image area extracting processor that extracts at least one image area, each containing one of said at least one subject, from said image (Column 6 line 24 – Column 7 line 64, Column 12 lines 39 – 47, wherein a subject will have the same distance throughout the sectors it occupies and will obtain the same coefficients throughout its white balance adjustment); and
- a control amount calculating processor that calculates a control amount for performing a white balance adjustment, based on said image signal relating to said image area (Column 6 line 24 – Column 7 line 64, see above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyadera (U.S. Patent 5, 550, 587) in view of Nakano et al. (U.S. Patent 6, 094, 220).

Regarding Claim 2, Miyadera fails to specifically disclose the image area extracting processor, wherein:

- extracts a single image area, and

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- said control amount calculating processor calculates said control amount, based on said image signal relating to said single image area which is extracted by said image area extracting processor.

Nakano teaches a method of:

- Extracting a single image area (Column 2 lines 46 – 53), and
- Calculating a control amount, based on said image signal relating to said single image area which is extracted by said image area extracting processor (Column 2 line 58 – Column 4 line 13).

Such an arrangement would be beneficial in maintaining the correct color information for an object of interest within a scene photographed.

Therefore, it would have been obvious to one of ordinary skill in the art to include the image area extracting processor wherein the processor extracts a single image area and the control amount calculating processor calculates the control amount based on the image signal relating to the single image area extracted by the image area extracting processor so as to maintain the correct color information for a subject of interest.

Regarding Claim 3, Miyadera and Nakano teach:

- second image is in-focus (Miyadera Column 10 lines 18 – 31), and
- said single image area is extracted by selecting pixels from said first image (Nakano Column 1 lines 42 – 47, Miyadera Column 6 line 24 – Column 7 line 64, Column 12 lines 39 – 47, see above),

- said pixel corresponding to points within a predetermined range from said predetermined distance (Miyadera Column 6 line 24 – Column 7 line 64, Column 10 lines 18 – 31, Column 12 lines 39 – 47, wherein for each “sector” it is seen that the object will be within the predetermined distance since the photographing lens is moved to the position wherein the object distance of the photographing lens is equal to the object distance from the object to the light receiving surface of the CCD, creating an in-focus state).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyadera (U.S. Patent 5, 550, 587) in view of applicant’s admitted prior art.

Regarding Claim 6, Miyadera fails to specifically disclose:

- control amount calculating processor extracts a third image composed of an achromatic color from said second image of said image area extracted by said image area extracting processor; and
- calculates said control amount based on only said third image.

Applicant’s admitted prior art teaches:

- control amount calculating processor extracts an image composed of an achromatic color from said the image (Page 1 lines 11 – 15); and
- calculates said control amount based on only said extracted image based on the achromatic color (Page 1 lines 11 – 15).

Such an arrangement of using the achromatic signals is well known and would be beneficial in accurately and efficiently correcting the color balance.

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Therefore, it would have been obvious to one of ordinary skill in the art to include the control amount calculating processor extracts a third image composed of an achromatic color from said second image of said image area extracted by said image area extracting processor; and calculate said control amount based on only said third image so as to accurately and efficiently obtain a correct white balance color correction.

Claims 7 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyadera (U.S. Patent 5, 550, 587) in view of Malek (U.S. Patent 4, 915, 498)

Regarding Claim 7, Miyadera fails to specifically disclose:

- image area extracting processor comprises a three dimensional image data sensing processor that senses three dimensional data indicating a distance from said electronic still camera to each point on a surface of said subject.

Malek teaches:

- a three dimensional image data sensing processor that senses three dimensional data indicating a distance from said electronic still camera to each point on a surface of said subject (Column 7 line 67 – Column 8 line 10);.

Such an arrangement would be beneficial in providing accurate distance information which in turn would provide a more accurate white balance control.

Therefore, it would have been obvious to one of ordinary skill in the art to include the image area extracting processor comprising a three dimensional image data sensing processor that senses three dimensional data indicating a distance from said electronic still camera to each

point on a surface of said subject so as to more accurately extract the image object and determine the correct white balance control.

Regarding Claim 8, Malek teaches:

- three dimensional image data sensing processor comprises a light source radiating a distance measuring light beam onto said subject (Column 7 lines 43 – 55), and
- three dimensional image signal generating processor that generates three dimensional data indicating a distance from said electronic still camera to each point on a surface of said subject (Column 7 line 67 – Column 8 line 10).

Regarding Claim 9, Malek teaches:

- three dimensional image signal generating processor comprises said image signal generating processor (Figure 1 item 9).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyadera (U.S. Patent 5, 550, 587) in view of Malek (U.S. Patent 4, 915, 498) in view of Yahav et al. (U.S. Patent 6, 057, 909) in further view of Kaneko et al. (Japanese laid-open Patent number Hei-4-351074).

Regarding Claim 10, Malek teaches said three dimensional image signal generating processor comprises:

- a plurality of photoelectric conversion elements that receive a reflected light beam from said subject, so that signal charge corresponding to an amount of said

received reflected light beam is accumulated in each of said photoelectric conversion elements (Column 7 line 67 – Column 8 line 10);

Miyadera discloses:

- an electric charge discharging processor that discharges unwanted charge accumulated in each of said photoelectric conversion elements, so that said accumulation of said signal charge is started in each of said photoelectric conversion elements (Column 10 lines 57 – 60);

Malek and Miyadera fail to specifically disclose:

- a signal charge holding unit disposed adjacent to each of said photoelectric conversion elements;
- a signal charge transfer processor that transfers said accumulated signal charge in said photoelectric conversion elements to said signal charge holding unit; and
- a signal charge integrating processor that drives said electric charge discharging processor and said signal charge transfer processor alternately, so that said signal charge is integrated in said signal charge holding unit.

Yahav teaches:

- Signal charge integrating processor that outputs control pulse signals to drive the electric charge discharging processor and transfer processor alternately (Column 2 lines 39 – 49 and Column 3 lines 9 – 38);

Furthermore, Yahav teaches the use of an electronic reset/readout technique in lieu of the crystal modulator used (Column 2 lines 40 – 49). Kaneko teaches such a known method.

Specifically, Kaneko teaches:

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- Signal charge holding unit disposed adjacent to each pixel (section [0021]);
- Signal charge transfer processor (section [0021]);
- Electric charge discharging processor (section [0021]).

It is noted that the dynamic range of the image sensor is controlled on the basis of determining the range the object of interest. It is necessary that the sensor be within an operable range to prevent saturation (Malek Column 9 lines 8 – 16). Such an arrangement of including an electronic reset/readout technique utilizing a method in which a light source and the reflected light incident upon the image sensor are blocked and unblocked many times during a single field would be useful in increasing the signal to noise ratio of the image produced by the camera.

Therefore, it would have been obvious to one of ordinary skill in the art to include Signal charge holding unit disposed adjacent to each pixel, Signal charge transfer processor, Signal charge integrating processor that outputs control pulse signals to drive the electric charge discharging processor and transfer processor alternately in accordance with a number of control pulse signals, Signal level adjusting processor that controls the number of control pulse signals to adjust a level of said signal charge so as to produce an object distance image with an appropriate dynamic range having an increased signal to noise ratio to therefore adjust the object image's white balance.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Hashimoto et al. U.S. Patent 6, 072, 526 Relates to the extraction of a unique feature (skin tone and an area of the image relating to the skin) so as to correctly correct the image signal for white balance correction.

Katijima U.S. Patent 5, 808, 681 relates to different white balance for subject(s) and the background.

Haruki et al. U.S. Patent 5, 555, 022 looks for a particular object (green objects) so as to reduce their effect on the white balance for the rest of the image.

Kubo et al. U.S. Patent 6, 545, 710 B1 looks for a "High light" area or areas of high illumination and generates white balance based on an overall image and the highlight areas proceeding to add the two together with a weight determined by the image signal.

Tanaka et al. U.S. Patent 5, 760, 831 general white balance information on breaking an image into multiple sections and controlling the white balance based on the independent image sections.

Sugiura U.S. Patent 5, 402, 182 looks at a limited area of the image signal and incrementally adjusts the white balance control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric D Wisdahl whose telephone number is (703) 305-4915. The examiner can normally be reached on 9:00 - 6:00 Mon-Thur every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service representative whose telephone number is (703) 306-0377.

Edw



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